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Forestry Canada - Maritimes Region

TECHNICAL NOTE

MULTI-AGENCY PLANTATION PEST SURVEYS IN NOVA SCOTIA IN 1988

Severe or moderate damage was found on at least some trees in 46 of the 62 plantations (72.2%) assessed in Nova Scotia in 1988, even though 91.0% of the 3900 trees were classified as healthy during multi-agency plantation pest assessment surveys. Aside from representing considerable financial investment, forest plantations are also an investment in the future. Much of the wood used in the next century will come from plantations. Insects and diseases pose the greatest threat to the orderly development of plantations. Protecting them from damage is of utmost importance if our expectations are to be realized.

It is no longer possible for any one organization to look after the health of the ever-increasing number of plantations in the Province. Realizing this, joint federal-provincial-industrial plantation pest assessment surveys have been conducted annually since 1986. Although the number of industrial organizations varies somewhat from year to year, depending on other priorities, the following companies have participated in joint surveys:

Bowater-Mersey Ltd. (B-M)
Stora Forest Industries Ltd. (Stora)

Provincial participation came from the Nova Scotia Department of Lands and Forests (NSLF). The Forest Insect and Disease Survey (FIDS) of Forestry Canada - Maritimes Region provided planning, training, co-ordination, identification services, summary, and analysis.

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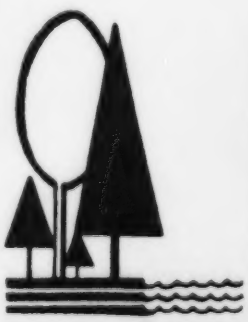
INSECTS AND DISEASES ■



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Assessments included detailed examination of all parts of 50 trees in each of the 62 plantation surveyed. Trees were selected in a prescribed manner. The subplots, of five trees each, were selected along a pre-determined line of travel through the plantation. The distance between subplots varied according to the size of the plantation to ensure good coverage and an adequate representation of conditions. Pest problems encountered between subplots or off the line of travel were noted but not considered in calculations. Of the 62 plantations assessed in 1988, 36 were spruce, 21 pine and 2 of other species.

The results of the survey are presented here in a series of tables, organized to show the various conditions in the seven NSLF resource management regions.

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Forest Insect and Disease Survey

May 1989

Table 1. Summary of plantation assessments by tree species and organization conducting field work in the various resource management regions in Nova Scotia in 1988.

For. Manag. Area	Tree species	Total plantations assessed	Organization		
			NSLF	Stora	FIDS
Western	Red spruce	4	4	–	–
	Red pine	3	3	–	–
	White pine	1	1	–	–
	Total for Region	**8**	**8**	**0**	**0**
Valley	Red spruce	4	4	–	–
	Spruce (Unsp)	2	2	–	–
	White pine	1	1	–	–
	Mixed	1	1	–	–
	Total for Region	**8**	**8**	**0**	**0**
S. Shore	Norway spruce	1	1	–	–
	Red pine	3	2	–	1
	Total for Region	**4**	**3**	**0**	**1**
N. Central	Red spruce	1	–	–	1
	Red pine	9	8	–	1
	Unsp.	1	1	–	–
	Total for Region	**11**	**9**	**0**	**2**
S. Central	Black spruce	1	1	–	–
	Red spruce	1	1	–	–
	Red pine	4	4	–	–
	Mixed	1	1	–	–
	Total for Region	**7**	**7**	**0**	**0**
Eastern	Black spruce	7	2	4	1
	Red spruce	5	–	5	–
	Norway spruce	3	1	2	–
	White spruce	1	1	–	–
	Jack pine	1	1	–	–
	Mixed	1	1	–	–
	Total for Region	**18**	**6**	**11**	**1**
Cape Breton	Black spruce	9	1	8	–
	Norway spruce	2	2	–	–
	White spruce	2	–	2	–
	Mixed	2	–	2	–
	Total for Region	**15**	**3**	**12**	**0**
Total for Nova Scotia		**71**	**44**	**23**	**4**

Table 2. Condition of pine and spruce trees by tree part in plantations ass

Region	Total no. Of trees	NEEDLES Condition categories (%) Healthy	Trace	Light	Mod.	Sev.	BUDS Condition categories (%) Healthy	Trace	Light	Mod.	Sev.	SHOOTS Condition categories (%) Healthy	Trace	Light	Mod.	Sev.
Pine																
W.	200	16.5	51.5	28.0	3.5	0.5	68.0	32.0	0.0	0.0	0.0	92.0	0.5	0.0	1.0	6.5
V.	50	100.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0
S.S.	150	28.5	26.5	30.0	9.0	6.0	68.5	31.0	0.5	0.0	0.0	95.0	5.0	0.0	0.0	0.0
N.C.	450	6.2	75.3	5.8	11.1	1.6	76.7	21.8	0.2	1.3	0.0	96.4	2.7	0.2	0.7	0.0
S.C.	200	0.0	0.0	0.0	51.2	48.8	97.0	2.5	0.5	0.0	0.0	45.2	54.8	0.0	0.0	0.0
E.	500	0.0	0.0	80.0	20.0	0.0	100.0	0.0	0.0	0.0	0.0	6.0	72.0	22.0	0.0	0.0
Provincial Average		**25.2**	**25.6**	**24.0**	**15.8**	**9.5**	**85.0**	**14.6**	**0.2**	**0.2**	**0.0**	**72.4**	**22.5**	**3.7**	**0.3**	**1.1**
Spruce																
W.	200	100.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0
V.	300	66.0	24.0	8.0	2.0	0.0	70.0	26.0	4.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0
S.S.	50	100.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.
N.C.	50	0.0	6.0	47.0	43.0	4.0	88.0	12.0	0.0	0.0	0.0	98.0	2.0	0.0	0.0	0.0
S.C.	100	16.3	39.0	23.6	20.3	0.7	95.3	4.7	0.0	0.0	0.0	85.0	11.7	0.0	0.7	0.7
E.	750	72.9	13.8	8.1	3.3	1.8	94.6	5.0	0.3	0.1	0.0	90.6	8.8	0.3	0.0	0.3
C.B.	650	79.8	12.9	3.3	2.0	2.0	95.9	4.1	0.0	0.0	0.0	96.4	2.2	0.2	0.5	0.7
Provincial Average		**62.1**	**13.7**	**12.9**	**10.1**	**1.2**	**92.0**	**7.4**	**0.6**	**0.0**	**0.0**	**95.7**	**3.5**	**0.3**	**0.2**	**0.3**

;ed in Nova Scotia in 1988.

BRANCHES					STEMS					LEADERS			ROOTS	
Condition categories (%)					Condition categories (%)					Condition categories (%)			Condition categories(%)	
Healthy	Trace	Light	Mod.	Sev.	Healthy	Trace	Light	Mod.	Sev.	Healthy	Damaged	Dead	Healthy	Damaged
67.5	4.5	26.5	1.5	0.0	71.0	9.0	14.5	5.5	0.0	96.0	4.0	0.0	100.0	0.0
100.0	0.0	0.0	0.0	0.0	78.0	16.0	6.0	0.0	0.0	100.0	0.0	0.0	100.0	0.0
82.0	17.5	0.5	0.0	0.0	98.0	2.0	0.0	0.0	0.0	99.5	0.5	0.0	100.0	0.0
55.8	33.6	7.3	2.7	0.7	88.7	4.9	2.2	1.8	2.0	94.0	5.6	0.4	88.7	11.3
87.5	11.0	0.5	0.0	0.0	84.2	7.5	5.8	2.0	0.5	99.5	0.5	0.0	78.8	21.2
0.0	54.0	46.0	0.0	0.0	50.0	10.0	34.0	2.0	4.0	94.0	6.0	0.0	98.0	2.0
65.5	20.1	13.5	0.7	0.3	78.3	8.2	10.4	1.9	1.1	97.2	2.8	0.1	94.2	5.8
36.0	0.0	38.0	26.0	0.0	100.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	100.0	0.0
100.0	0.0	0.0	0.0	0.0	38.0	50.0	10.0	0.0	2.0	94.0	6.0	0.0	98.0	2.0
36.0	0.0	38.0	26.0	0.0	100.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	100.0	0.0
42.0	46.0	12.0	0.0	0.0	98.0	2.0	0.0	0.0	0.0	92.0	8.0	0.0	96.0	4.0
74.6	17.3	1.3	5.3	1.3	86.6	0.7	0.0	2.7	10.0	93.0	6.7	0.3	98.0	2.0
77.7	12.8	7.1	2.0	0.3	88.8	6.2	2.0	2.3	0.6	95.6	4.4	0.0	99.6	0.4
92.6	4.6	1.6	1.1	0.0	73.6	19.2	3.5	2.3	1.3	94.8	5.2	0.0	99.3	0.7
65.6	11.5	14.0	8.6	0.2	83.6	11.2	2.2	1.0	2.0	95.6	4.4	0.0	98.7	1.3

Table 3. The condition of trees in plantations in the Maritimes in 1988

Province	Species	Trees in various condition categories (%)			
		Healthy	Fair	Poor	Dead
N.B.	Pine	92.7	4.9	1.7	0.7
	Spruce	93.2	4.8	1.2	0.8
	Other	89.6	6.8	2.3	1.3
N.S.	Pine	93.4	4.9	1.5	0.2
	Spruce	90.4	7.2	1.4	1.0
	Other	81.2	14.4	3.6	0.8
P.E.I.	Pine	88.5	10.5	1.0	0.0
	Spruce	88.3	8.7	3.0	0.0
	Other	77.0	23.0	0.0	0.0

Table 4. Plantations with at least some incidence of severe or moderate damage in the Maritimes in 1988

Province	Species	Number of plantations		
		Assessed	With damage	
			Mod.	Sev.
N.B.	Pine	50	9	17
	Spruce	131	31	54
	Other	7	2	2
N.S.	Pine	21	4	11
	Spruce	36	13	16
	Other	5	1	1
P.E.I.	Pine	3	1	2
	Spruce	4	2	1
	Other	2	1	1

Table 5. Problems observed at the severe or moderate level during plantation pest assessment surveys in Nova Scotia in 1988

	Number of plantations with problems in the various NSLF subdivisions																					
	Pine							Spruce							Other							
Plantation problems	W	SS	V	NC	SC	E	CB	W	SS	V	NC	SC	E	CB	W	SS	V	NC	SC	E		
Abiotic injuries	1	1	–	–	3	–	–	1	–	2	–	2	3	4	–	–	1	–	–	–		
Animal damage	2	–	–	4	1	1	–	1	–	–	–	2	2	–	–	–	–	–	–	–		
Armillaria root rot	–	–	–	–	1	–	–	–	–	–	1	–	–	3	–	–	–	–	–	–		
Budworm(s)	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–		
European pine shoot moth	–	–	–	3	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
Faulty planting	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–		
Frost damage	–	–	–	–	–	–	–	–	–	–	–	1	1	1	–	–	–	–	–	–		
Hardwood competition	–	–	–	–	–	–	–	–	–	–	–	–	2	1	–	–	–	–	–	–		
Herbaceous competition	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–		
Mites	–	–	–	3	1	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–		
Needle rust	–	–	–	4	1	–	–	–	–	–	–	1	–	–	–	–	–	1	–	–		
Root collar weevil	–	–	–	–	–	–	–	–	–	–	–	1	–	1	–	–	–	–	–	–		
Sirococcus shoot blight	–	–	–	1	1	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–		
Snow damage	–	–	–	3	1	–	–	–	–	1	1	–	1	4	–	–	–	–	–	–		
Spruce bud midge	–	–	–	–	–	–	–	–	–	–	1	1	–	–	–	–	–	–	–	–		
Spruce gall adelgid	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–		
Spruce twig aphid	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–		
White pine weevil	1	–	–	–	–	–	–	–	–	–	–	–	1	1	–	–	–	–	–	–		
Winter drying	–	1	–	1	–	–	–	–	1	2	1	–	1	1	–	–	–	–	–	–		
Misc. problems	1	–	–	–	–	1	–	–	–	–	–	–	2	2	–	–	–	–	–	–		

W=western; SS=South Shore; V=Valley; NC=North Central; SC=South Central; E=Eastern; C.B.=Cape Breton